

ABSTRACT OF THE DISCLOSURE

An inverter includes an upper ECU, a communication microcomputer receiving an instruction from the upper ECU, a motor control microcomputer receiving an instruction from the communication microcomputer, a gate driving circuit controlled by the motor control microcomputer, and a switching element driven by the gate driving circuit for converting a direct current of a high-voltage battery into an alternating current to drive a motor. The communications between the upper ECU and the communication microcomputer is performed according to a CAN protocol. The communications between the communication microcomputer and the motor control microcomputer is performed according to a low-speed serial communication protocol. An insulation boundary is defined between the communication microcomputer and the motor control microcomputer to isolate a low-voltage side electric component receiving electric power of the low-voltage battery from a high-voltage side electric component receiving electric power of the high-voltage battery. And, a photo coupler is disposed on the insulation boundary to assure insulation and transmit signals.